1. Determine whether or not $y^2 - 3x = 7$ defines y as a function of x. If it does not,

show/explain why not.

2. Let $f(x) = 2x^2 - 5x + 1$. Simplify the difference quotient $\dfrac{f(x+h) - f(x)}{h}$.

3. Let $f(x) = \dfrac{x-3}{x-5}$ and $g(x) = \sqrt{x+2}$.

   a. What is the domain of f?

   b. What is the domain of g?

   c. Find $(f \circ g)(x)$.

   d. What is the domain of $(f \circ g)(x)$?

   e. Determine each of the following functions (without simplifying) and state the domain of each in *interval notation*.

      i. $(g - f)(x)$

      ii. $\left(\dfrac{f}{g}\right)(x)$